植 物 分 类 学 报 45 (3): 415–420 (2007)
Acta Phytotaxonomica Sinica
doi:10.1360/aps06153
http://www.plantsystematics.com

关于木本石松植物鳞皮木属的正确名称

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On the correct name for arborescent lycopsid *Lepidophloios* (Lepidodendraceae)

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Abstract The correct name for arborescent lycopsid *Lepidophloios* Sternberg is discussed. Based upon Sternberg's (1825) protologue, correlative literatures and type specimen, *Lepidophloios* is actually a later orthographical variant and its original spelling is *Lepidofloyos*. According to the *International Code of Botanical Nomenclature* (Vienna Code, Art. 60. 1 and 61. 1), *Lepidofloyos* should be the correct name for *Lepidophloios*. The figure and description of the type specimen of *Lepidofloyos* Sternberg are given.
Key words arborescent lycopsid, Lepidodendraceae, *Lepidofloyos*, *Lepidophloios*, type specimen.

摘要 讨论了木本石松植物鳞皮木属*Lepidophloios* Sternberg的正确名称。基于Sternberg 1825年的原始描述和相关文献以及模式标本, *Lepidophloios* 实际上是一个晚出的拼写变体, 它的原始拼写为*Lepidofloyos*。根据《国际植物命名法规》(维也纳法规规则60. 1和61. 1), *Lepidofloyos* Sternberg应该是鳞皮木属的正确名称。作者给出了鳞皮木属模式标本的图片和描述。
关键词 木本石松植物; 鳞木科; 鳞皮木属; 模式标本

捷克古植物学家Kaspar Maria Count Sternberg (1761–1838)被誉为古植物学的三大奠基人之一, 其德文巨著《试论史前植物群: 地质学和植物学的描述》(*Versuch einer geognostich-botanischen Darstellung der Flora der Vorwelt*)第 1 卷第1部发表于1820年12月31日, 该日期在1954年巴黎召开的第八届国际植物学大会上被确定为化石植物名称合格发表的起始点(Kvaček & Kvaček, 1992; Kvaček & Straková, 1997; Greuter et al., 2000; McNeill et al., 2006)。因此, 许多当前使用的植物化石名称的原始描述都出自Sternberg的著作, 一些名称沿用至今。近来, 作者在与捷克科学院的同行开展国际合作交流期间有幸拜读了Sternberg的不朽杰作, 共计 2 卷, 分 8 部(Sternberg, 1820, 1821, 1823, 1825, 1833, 1838)。基于Sternberg的原始描述和相关文献以及模式标本, 本文着重讨论了石炭纪地层中常见的木本石松植物化石——鳞皮木属*Lepidophloios* Sternberg的名称问题。

2006-09-21 收稿, 2007-03-12 收修改稿。
基金项目: 国家自然科学青年基金(40402001); 中国和捷克国际合作交流项目(40610104046)(Supported by the National Natural Science Foundation of China, Project for Young Scientists' Fund, Grant No. 40402001, and the International Cooperation and Exchange Project of China and the Czech Republic, Grant No. 40610104046)。
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1 鳞皮木属名称的拼写变体

Lepidophloios Sternberg这个名称作为鳞皮木属的属名已经被使用了160多年，它是石炭纪地层中最常见的木本石松植物的茎印痕或压型化石之一(Endlicher, 1841; Schimper, 1870; Kidston, 1893; Potonié, 1902; Hirmer, 1927; Crookall, 1964; Chaloner, 1967; Thomas, 1978; Thomas & Meyen, 1984; 图1: A–B)，其母体植物为欧美晚石炭世煤系沼泽植被的主要组分，因而也是这一时期重要的成煤植物(Phillips et al., 1974; DiMichele, 1979; DiMichele & Phillips, 1985; Cleal & Thomas, 1999; Dilcher et al., 2005)。然而，Sternberg本人从未使用过*Lepidophloios*这个名称，它只是后期作者使用的拼写变体(orthographical variant)之一，其原始名称*Lepidofloyos*和描述出自Sternberg(1825)的《试论史前植物群：地质学和植物学的描述》第 1 卷第4部。

Sternberg于1820年建立一个新属*Lepidodendron*，用于描述茎轴表面具有螺旋排列叶座的植物化石，这个名称沿用至今，通称为鳞木属，归入石松纲Lycopsida鳞木科Lepidodendraceae Potonié 1902。1825年，Sternberg将*Lepidodendron laricinum* Sternberg 1820移入另一个新建立的属*Lepidofloyos*，用于描述茎轴表面具有螺旋排列、宽大于长的叶座的植物化石(图1: C)。Endlicher (1841)在《植物学手册》(*Enchiridion Botanicum*)中记录*Lepidofloyos* Sternb. (索引第728页) 时使用了一个拼写变体*Lepidophloios* Sternb. (正文第48页)。Unger (1850)在《化石植物属种志》(*Genera et Species Plantarum Fossilium*)中也使用一个拼写变体*Lepidophloyos* Sternb.。Dijkstra和van Ameron (1991)在《化石名录》(*Fossilium Catalogus*)中又使用了另外一个相似的拼写变体*Lepidofloios* Sternberg。这些拼写变体都没有被指定模式。最终，只有拼写变体*Lepidophloios* Sternberg使用得最广，通称为鳞皮木属，与鳞木属一并归入石松纲鳞木科。实际上，一些古植物学家(Kidston, 1893; Schopf, 1941; Andrews, 1955; Crookall, 1964; Chaloner, 1967)已经注意到*Lepidofloyos*的拼写变化，但他们仍然使用了*Lepidophloios*。近年来，Sternberg的著作《试论史前植物群：地质学和植物学的描述》中描述的化石植物被重新调查，其中*Lepidofloyos*这个最早的名称又被重申(Kvaček & Kvaček, 1992; Gordenko et al., 2006)，而且指定了模式标本(后选模式E 4747，保存于捷克布拉格国家博物馆，NM)(Kvaček & Straková, 1997)。根据《国际植物命名法规》规则60. 1和61. 1 (McNeill et al., 2006)，作者认为*Lepidofloyos* 作为Sternberg原著中的原始拼写应该是鳞皮木属的正确名称。考虑到拼写变体*Lepidophloios* Sternberg已经使用了160多年，根据《国际植物命名法规》规则14. 11 (McNeill et al., 2006)，作者近来已提议它作为*Lepidofloyos* Sternberg的保留名(Wang, 2007)。

2 鳞皮木属的正确名称

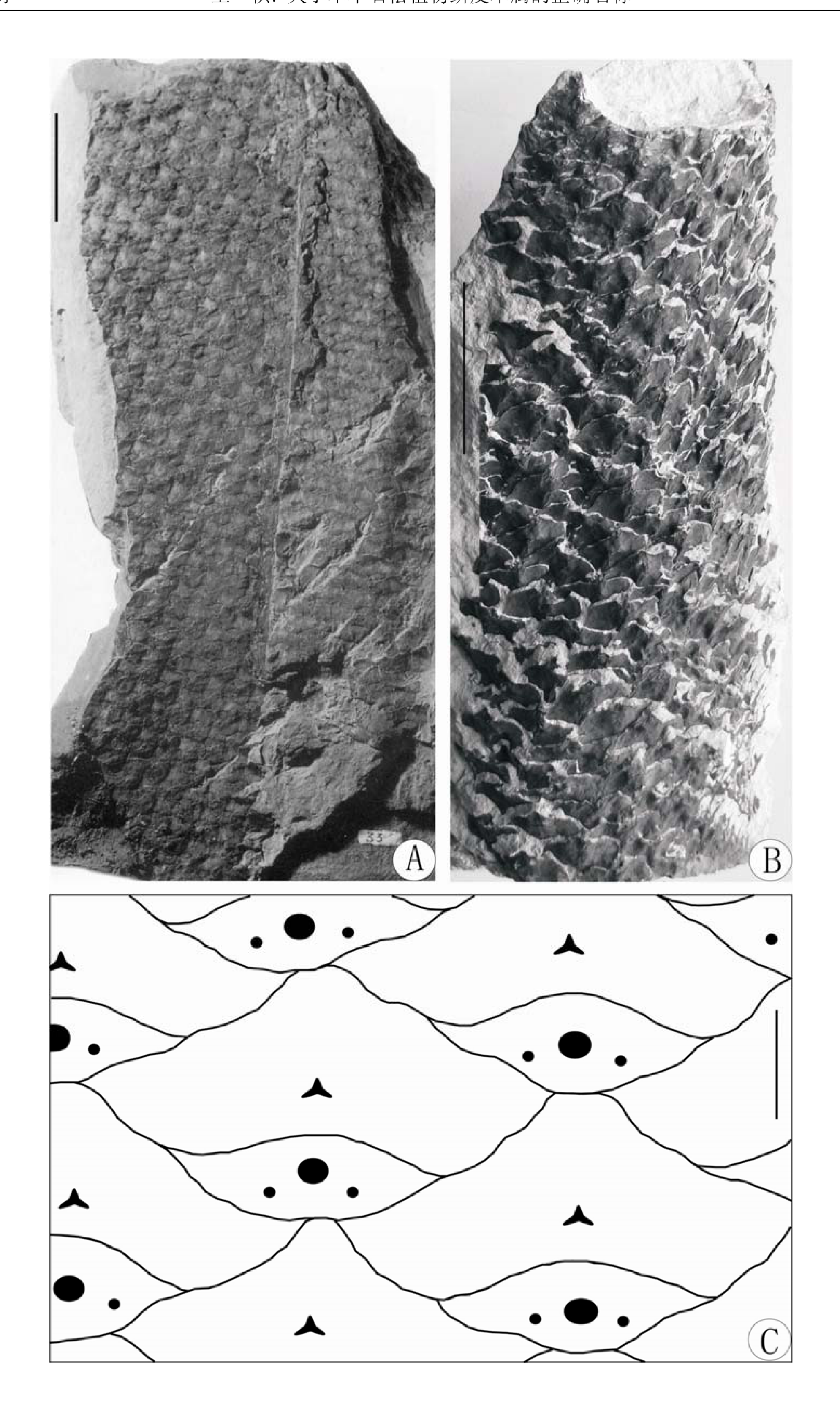
鳞皮木属(鳞木科Lepidodendraceae) 图1: A–C

Lepidofloyos Sternberg in Fl. Vorwelt I (4): tent. 13. 1825; Endlicher in Enchirid. Bot.

→

图1 鳞皮木属 **A.** 茎印痕化石,显示了螺旋排列的叶座。后选模式: E 4747(NM)。**B.** 茎压型化石，显示了覆瓦状排列的叶座。凭证标本: E 4674(NM)。**C.** 叶座的解释性线条图。标尺: A, B=4 cm; C=2 mm。

Fig. 1. *Lepidofloyos* Sternberg 1825. **A,** Stem impression, showing spirally arranged leaf cushions. Lectotype: E 4747 (NM). **B,** Stem compression, showing imbricate leaf cushions. Voucher specimen: E 4674 (NM). **C,** An interpretative line drawing of leaf cushions. Scale bar: A, B=4 cm; C=2 mm.


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A
B
C

728. 1841; Unger in Synop. Pl. Foss. 143. 1845; Andrews in Geol. Surv. Bull. 1013: 179. 1955; Kvaček & Straková in Cat. Foss. Pl. 18. 1997; Gordenko et al. in Paleontol. J. 40 (2): 217. 2006; Wang in Taxon 56 (1): 268. 2007. Type: *Lepidodendron laricinum* Sternberg= *Lepidofloyos laricinum* (Sternberg) Sternberg.

Orthographical variants: *Lepidophloios* Sternberg, Endlicher in Enchirid. Bot. 48. 1841; Schimper in Trait. Paléontol. Végét. II (1): 49. 1870; Kidston in Trans. Roy. Soc. Edinburgh 37: 529. 1893; Potonié in Die Natür. Pflanzenfam. I (4): 731. 1902; Hirmer in Hand. Paläobot. 233. 1927; Jongmans in Foss. Cat. 16: 405. 1930; Jongmans in Foss. Cat. 21: 1041. 1936; Schopf in Amer. Midl. Nat. 25 (3): 549. 1941; Gothan & Remy in Steinkohlenpflanz. 68. 1957; Němejc in Paleobot. II: 196. 1963; Crookall in Mem. Geol. Sur. Great Brit., Palaeontol. IV (3): 304. 1964; Chaloner in Trait. Paléobot. II: 569. 1967; Kotasowa in Inst. Geol. Prace 52: 28. 1968; Dijkstra in Foss. Cat. 73: 1476. 1969; Thomas in Bot. Rev. 44 (3): 322. 1978; Thomas & Brack-Hanes in Taxon 33 (2): 251. 1984; Thomas & Meyen in Rev. Palaeobot. Palynol. 41: 278. 1984; Dijkstra & van Amerom in Foss. Cat. 94: 103. 1991; Dilcher et al. in Alabama Paleontol. Soc. Monogr. 1: 157. 2005; Wang in Taxon 56 (1): 268. 2007. ——*Lepidophloyos* Sternberg, Unger in Gen. et Spec. Pl. Foss. 278. 1850; Goldenberg in Fl. Saraep. Foss. III: pl. 15, figs. 11–13, pl. 16, figs. 1–8. 1862. ——*Lepidofloios* Sternberg, Dijkstra & van Amerom in Foss. Cat. 94: 103. 1991.

Lepidofloyos laricinum (Sternberg) Sternberg in Fl. Vorwelt I (4): tent. 13. 1825; Unger in Synop. Pl. Foss. 144. 1845; Andrews in Geol. Surv. Bull. 1013: 179. 1955; Kvaček & Kvaček in Čas. Nár. Muz. v Praze, Řada přírodověd. 158 (1–4): 41, pl. 1, fig. 2. 1992; Kvaček & Straková in Cat. Foss. Pl. 93, pl. 29, fig. 4, pl. 31. 1997; Wang in Taxon 56 (1): 268. 2007. ——*Lepidodendron laricinum* Sternberg in Fl. Vorwelt I (1): 23, pl. 11, figs. 2–4. 1820. ——*Lepidophloyos laricinum* Sternberg, Unger in Gen. et Spec. Pl. Foss. 278. 1850. ——*Lepidophloios laricinum* Sternberg, Goldenberg in Fl. Saraep. Foss. III: 30. 1862; ——*Lepidophloios laricinus* Sternberg, Schimper in Trait. Paléontol. Végét. II (1): 51. pl. 59, pl. 60, figs. 11, 12. 1870; Potonié in Die Natür. Pflanzenfam. I (4): 731, figs. 425, 428. 1902; Hirmer in Hand. Paläobot. 234, figs. 263, 264. 1927; Jongmans in Foss. Cat. 16: 422. 1930; Jongmans in Foss. Cat. 21: 1041. 1936; Gothan & Remy in Steinkohlenpflanz. 68, fig. 59. 1957; Remy & Remy in Pflanzenfoss. 103, fig. 80. 1959; Němejc in Paleobot. II: 197, pl. 14, figs. 1, 2. 1963; Crookall in Mem. Geol. Sur. Great Brit., Palaeontol. IV (3): 307, pl. 74, figs. 2–6, pl. 75, fig. 6, pl. 78, figs. 1, 6, text-figs. 98, 100c. 1964; Chaloner in Trait. Paléobot. II: 570. 1967; Kotasowa in Inst. Geol. Prace 52: 29, pl. 7, fig. 1. 1968; ——*Lepidophloios laricinus* (Volkmann) Sternberg, Dijkstra in Foss. Cat. 73: 1479. 1969; Dijkstra & van Amerom in Foss. Cat. 94: 106. 1991. ——*Lepidophloios laricinus* (Sternberg) Goldenberg, Dilcher et al. in Alabama Paleontol. Soc. Monogr. 1: 157, pl. 1, figs. 5–7. 2005.

Lectotype: E 4747 (*Lepidodendron laricinum* Sternberg in Fl. Vorwelt I (1): 23, pl. 11, fig. 2. 1820; *Lepidofloyos laricinum* (Sternberg) Sternberg, Kvaček & Straková in Cat. Foss. Pl. 93, pl. 31. 1997) (Fig. 1: A). Repository: National Museum (NM), Prague. Type locality: Vranovice near Radnice, Bohemia of the Czech Republic. Stratigraphy: Radnice Member, Kladno Formation. Age: Late Carboniferous (Bolsovian); Other voucher specimens: E 95, E 96, E 4674 (syn. *Zamites cordai* Sternberg in Fl. Vorwelt II (7/8): 196. 1838) (Fig. 1: B), and E 5512. Repository: National Museum (NM), Prague. Locality: Radnice, Bohemia of the Czech Republic. Stratigraphy: Radnice Member, Kladno Formation. Age: Late Carboniferous (Bolsovian).

Stem impression or compression of arborescent lycopsids, up to 20 cm long and 8 cm wide, covered with scale-like leaf cushions which are spirally arranged and more or less imbricate. Leaf cushions are transversely rhombic, much broader than long, 8–10 mm wide by 4–6 mm long, lateral angles acute, upper angle obtuse, lower angle generally rounded, and longitudinal keel absent or faintly developed. Leaf cushion interareas abscent. Leaf scar, 5–7

mm wide by 1.5–2.5 mm long, at the bottom of the cushion, transversely oval or rhombic, lateral angles acute, upper and lower angles usually rounded. Within the leaf scar there are three punctiform cicatricles; the central cicatricle, representing the vascular scar, is usually larger than the others; the two lateral cicatricles represent parichnos scars. The ligular scar occurs above the leaf scar and is typically triradiate. No other sculptures on the surface of leaf cushions.

木本石松植物的茎印痕化石或压型化石，达20 cm长，8 cm宽，覆有鳞片状的叶座，或多或少覆瓦状、螺旋排列。叶座横菱形，宽大于长, 8–10 mm宽, 4–6 mm长，侧角尖锐，顶角钝，底角一般较圆，中央纵脊缺乏或不明显。叶座间隔区缺乏。叶痕5–7 mm宽，1.5–2.5 mm长，位于叶座的底部，横卵形或菱形，侧角尖锐，顶、底角一般较圆。叶痕内有3个点状痕；中央痕即维管束痕，通常较大; 2个侧痕即通气道痕。叶舌痕位于叶痕之上，通常是三辐射形。叶座表面没有其他纹饰。

致谢　衷心感谢中国科学院植物研究所汤彦承先生和王士俊研究员提出宝贵的指导性意见、捷克布拉格国家博物馆Jiři Kvaček博士和Milan Libertín先生协助查阅化石标本和照相、捷克科学院地质研究所Jiři Bek博士、美国佛罗里达自然历史博物馆Terry Lott先生和中国科学院南京地质古生物研究所徐洪河博士提供部分重要文献！

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